

NMCP COVID-19 Literature Report #33: Friday, 31 July 2020

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Purpose: These now weekly reports, published on Fridays, are curated collections of current research, evidence reviews, and news regarding the COVID-19 pandemic. Please feel free to reach out with questions and suggestions for future topics.

All reports are available online at <https://nmcp.libguides.com/covidreport>. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily.

Statistics

Global 17,325,093 confirmed cases and 673,936 deaths in 188 countries/regions

*United States**

top 5 states by cases (Virginia is ranked 16th)

	TOTAL US	CA	FL	TX	NY	GA
Confirmed Cases	4,495,612	493,140	461,379	428,229	414,370	182,286
Tested	54,644,715	7,633,840	3,579,117	3,609,474	5,820,840	1,541,389
Recovered	NA	NA	NA	260,542	72,973	NA
Deaths	152,082	9,032	6,586	6,442	32,683	3,671

*see census.gov for current US Population data; NA: not all data available

[JHU CSSE](https://www.jhu-csse.org) as of 1100 EDT 31 July 2020

<i>Virginia</i>	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	89,888	2,450	1,007	1,573	3,180	1,462	1,034	4,055
Hospitalized	7,866	201	49	74	168	122	92	200
Deaths	2,174	28	5	16	24	22	49	45

[VA DOH](https://www.vahhs.org) as of 1100 EDT 31 July 2020

Special Reports

[JHCHS](#): Resetting Our Response: Changes Needed in the US Approach to COVID-19 (29 July 2020)

"The impact of the COVID-19 pandemic in the United States has been profound. Despite initial declines in cases in May 2020 following implementation of stringent stay-at-home orders, cases are resurging in most states. The number of deaths has been rising in many states, with hospitalization rates for COVID-19 now again matching or exceeding numbers seen at the peak in New York City in March and April. Hospitals are under pressure or approaching a crisis in many places around the country. This resurgence is stressing many sectors of society, from businesses to education to health care. Unlike many countries in the world, the United States is not currently on course to get control of this epidemic. It's time to reset.

This brief report describes concrete policy actions at the federal, state, and local levels that are needed to get control of the COVID-19 pandemic in the United States.

Recommendations identify "quarterbacks," or responsible designees, to lead each policy action. However, leaders and stakeholders at all levels (federal, state, and local) will need to contribute commitment, technical expertise, insights, and funding to make the proposed actions possible.

The COVID-19 pandemic is a challenge far beyond what any 1 state, territory, or community can handle alone. It is only our collective action that will generate the change necessary to regain control of this epidemic, avoid cascading crises in our healthcare system and economy, and save great numbers of lives throughout the United States."

[NASEM](#): Rapid Expert Consultation on Staffing Considerations for Crisis Standards of Care for the COVID-19 Pandemic (28 July 2020)

[Per the press release](#):

"With nearly 40 states being designated COVID-19 "hot spots," the availability of qualified critical care and respiratory therapy staff continues to be a problem for hospitals. In some cases, even if existing staff may be capable of working additional hours, they may have concerns about spreading the disease to family members or being at higher risk for complications themselves, or they may be uncomfortable about the availability of effective personal protective equipment.

The rapid expert consultation says health care systems should consider a number of staffing strategies, including moving clinical staff from lesser-affected regions or from one facility to another; adjusting the ratio of critical care nurses to patients; using local and national contract agencies for short-term support; and tailoring the job responsibilities of existing staff. Respiratory therapists in particular are in significant demand and do not have

correlate staff who can perform in their roles, the authors noted. Their responsibilities should be closely examined to prioritize ventilator set-up and address the needs of ventilated patients, since other staff may not be accustomed to ventilator operations. Staff policies should also describe how staff who are exposed to COVID-19 could still contribute to telemedicine or remote training — if they are physically and psychologically able to do so.

The authors of the rapid expert consultation also outlined a series of questions that could guide hospitals and health care coalitions in assessing staffing needs. Staffing numbers alone are not adequate for understanding needs and should be accompanied by insights into how staff are being asked to spend their time. Issues of racial equity should also be included in considerations about the well-being of staff and care of patients."

Of similar interest, this NASEM workshop from November 2019: [Crisis Standards of Care: Successes and Challenges from the Past Ten Years - A Workshop](#)

"A public workshop was held discuss the development of crisis standards of care (CSC) over the past ten years. Participants discussed various topics, such as how individual states have handled crisis situations, what changes have been made on a state and federal level over the past decade, and how CSC should improve over the coming decade."

From the CDC

[Interim Guidance for Use of Pooling Procedures in SARS-CoV-2 Diagnostic, Screening, and Surveillance Testing](#) (update 23 July 2020)

What is pooling?

Pooling—sometimes referred to as pool testing, pooled testing, or batch testing—means combining respiratory samples from several people and conducting one laboratory test on the combined pool of samples to detect SARS-CoV-2, the virus that causes COVID-19.

Why is pooling used?

Pooling allows laboratories to test more samples with fewer testing materials. It could be useful in scenarios like returning groups of workers to a workplace.

What happens if the pooled test result is negative?

If a pooled test result is negative, then all the samples can be presumed negative with the single test. In other words, all of the people who provided samples can be assumed to test negative for SARS-CoV-2 infection.

What happens if the pooled test result is positive?

If the pooled test result is positive, each of the samples in the pool will need to be tested individually to determine which samples are positive.

When should pooling be used?

Pooling should be used only in areas or situations where the number of positive test results is expected to be low—for example in areas with a low prevalence of SARS-CoV-2 infections.

Selected Literature: Peer-Reviewed Journals

30 July 2020

[Euro Surveill](#): *Legionella pneumonia*: increased risk after COVID-19 lockdown? Italy, May to June 2020

"We report a case of *Legionella pneumonia* in a dishwasher of a restaurant in Rome, Italy, just after the end of the lockdown that was in place to control the SARS-CoV-2 epidemic. The case highlights the importance of strict monitoring of water and air systems immediately before reopening business or public sector buildings, and the need to consider *Legionella* infections among the differential diagnosis of respiratory infections after lockdown due to the ongoing COVID-19 pandemic."

[JAMA Netw Open](#): Comparison of Weighted and Unweighted Population Data to Assess Inequities in Coronavirus Disease 2019 Deaths by Race/Ethnicity Reported by the US Centers for Disease Control and Prevention

"We compared the distribution of COVID-19 deaths by race/ethnicity with 2 separate population distributions provided by the CDC: National Center for Health Statistics weighted population and US Census unweighted population....

In total, 54 861 COVID-19 deaths were reported as of May 13, 2020. Applying the US Census population distribution, Black individuals were the most overrepresented among COVID-19 deaths, accounting for 9.9% greater than their share of the US Census population, whereas White individuals were underrepresented (–8.1%). In contrast, comparisons with the weighted data suggest that White individuals are most overrepresented among COVID-19 deaths (10.9%). Discrepancies were also noted when comparing deaths with the unweighted vs weighted populations among Latinx (–1.7% vs –10.2%) and Asian (0.1% vs –5.7%) individuals....

In summary, the CDC's presentation of data on race/ethnicity and COVID-19 deaths is misleading, with consequences for resource allocation for mitigating health inequities. We urge the CDC to drop the misleading weighted counts and publish mortality rates per race/ethnicity group stratified by age, gender, education, and ZIP code characteristics to adequately equip epidemiologists and policy makers with the data to mitigate inequities."

[JAMA Pediatr](#): Age-Related Differences in Nasopharyngeal Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Levels in Patients With Mild to Moderate Coronavirus Disease 2019 (COVID-19)

"Our analyses suggest children younger than 5 years with mild to moderate COVID-19 have high amounts of SARS-CoV-2 viral RNA in their nasopharynx compared with older children and adults. Our study is limited to detection of viral nucleic acid, rather than infectious virus, although SARS-CoV-2 pediatric studies reported a correlation between higher nucleic acid levels and the ability to culture infectious virus. Thus, young children can potentially be important drivers of SARS-CoV-2 spread in the general population, as has been demonstrated with respiratory syncytial virus, where children with high viral loads are more likely to transmit. Behavioral habits of young children and close quarters in school and day care settings raise concern for SARS-CoV-2 amplification in this population as public health restrictions are eased. In addition to public health implications, this population will be important for targeting immunization efforts as SARS-CoV-2 vaccines become available."

[Nature](#): Single-shot Ad26 vaccine protects against SARS-CoV-2 in rhesus macaques

"A safe and effective vaccine for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may be required to end the coronavirus disease 2019 (COVID-19) pandemic. For global deployment and pandemic control, a vaccine that requires only a single immunization would be optimal. Here we show the immunogenicity and protective efficacy of a single dose of adenovirus serotype 26 (Ad26) vector-based vaccines expressing the SARS-CoV-2 spike (S) protein in nonhuman primates. Fifty-two rhesus macaques were immunized with Ad26 vectors encoding S variants or sham control and were challenged with SARS-CoV-2 by the intranasal and intratracheal routes. The optimal Ad26 vaccine induced robust neutralizing antibody responses and provided complete or near-complete protection in bronchoalveolar lavage and nasal swabs following SARS-CoV-2 challenge. Vaccine-elicited neutralizing antibody titres correlated with protective efficacy, suggesting an immune correlate of protection. These data demonstrate robust single-shot vaccine protection against SARS-CoV-2 in nonhuman primates. The optimal Ad26 vector-based vaccine for SARS-CoV-2, termed Ad26.COV2.S, is currently being evaluated in clinical trials."

[NEJM](#): Swabs Collected by Patients or Health Care Workers for SARS-CoV-2 Testing

"Our study shows the clinical usefulness of tongue, nasal, or mid-turbinate samples collected by patients as compared with nasopharyngeal samples collected by health care workers for the diagnosis of Covid-19. Adoption of techniques for sampling by patients can reduce PPE use and provide a more comfortable patient experience. Our analysis was cross-sectional, performed in a single geographic region, and limited to single comparisons with the results of nasopharyngeal sampling, which is not a perfect standard test. Despite these limitations, we think that patient collection of samples for SARS-CoV-2 testing from sites other than the nasopharynx is a useful approach during the Covid-19 pandemic."

29 July 2020

[Ann Intern Med](#): Cardiac Endotheliitis and Multisystem Inflammatory Syndrome After COVID-19

"Our report highlights the potential for serious complications due to endothelial damage and describes potential pathologic characteristics of MIS after COVID-19, a possible mimicker of true myocarditis. Careful monitoring of laboratory markers of inflammation, as well as therapeutic intervention to target this inflammatory process, may improve patient outcomes."

[Lancet Infect Dis](#): Observations of the global epidemiology of COVID-19 from the prepandemic period using web-based surveillance: a cross-sectional analysis

"Our analysis uses global epidemiological data from reported cases of COVID-19 to characterise the early spread of the disease and characteristics of cases and clusters of cases. Using publicly available data from national ministries of health and other government official websites and press releases, our analysis provides insights about routes of spread, the age and sex distribution of early confirmed cases and deaths, and commonly identified early transmission patterns.

Our findings show the possible contribution of travel from a few countries to the global spread of SARS-CoV-2, confirm age and sex characteristics of early cases of COVID-19 reported from mainland China and several other countries to date, and identify transmission settings that played a role in early SARS-CoV-2 spread. Our analysis also highlights the relatively late detection of SARS-CoV-2 in the WHO African region and remaining knowledge gaps, including the paucity of case data from low-income countries."

28 July 2020

[NEJM](#): Evaluation of the mRNA-1273 Vaccine against SARS-CoV-2 in Nonhuman Primates

"Nonhuman primates [female and male Indian-origin rhesus macaques] received 10 or 100 µg of mRNA-1273, a vaccine encoding the prefusion-stabilized spike protein of SARS-CoV-2, or no vaccine. Antibody and T-cell responses were assessed before upper- and lower-airway challenge with SARS-CoV-2. Active viral replication and viral genomes in bronchoalveolar-lavage (BAL) fluid and nasal swab specimens were assessed by polymerase chain reaction, and histopathological analysis and viral quantification were performed on lung-tissue specimens.

The mRNA-1273 vaccine candidate induced antibody levels exceeding those in human convalescent-phase serum, with live-virus reciprocal 50% inhibitory dilution (ID50) geometric mean titers of 501 in the 10-µg dose group and 3481 in the 100-µg dose group. Vaccination induced type 1 helper T-cell (Th1)–biased CD4 T-cell responses and low or undetectable Th2 or CD8 T-cell responses. Viral replication was not detectable in BAL fluid by day 2 after challenge in seven of eight animals in both vaccinated groups. No viral

replication was detectable in the nose of any of the eight animals in the 100-μg dose group by day 2 after challenge, and limited inflammation or detectable viral genome or antigen was noted in lungs of animals in either vaccine group."

[Science Adv](#): Non-neuronal expression of SARS-CoV-2 entry genes in the olfactory system suggests mechanisms underlying COVID-19-associated anosmia

"Altered olfactory function is a common symptom of COVID-19, but its etiology is unknown. A key question is whether SARS-CoV-2 (CoV-2) – the causal agent in COVID-19 – affects olfaction directly, by infecting olfactory sensory neurons or their targets in the olfactory bulb, or indirectly, through perturbation of supporting cells. Here we identify cell types in the olfactory epithelium and olfactory bulb that express SARS-CoV-2 cell entry molecules. Bulk sequencing demonstrated that mouse, non-human primate and human olfactory mucosa expresses two key genes involved in CoV-2 entry, ACE2 and TMPRSS2. However, single cell sequencing revealed that ACE2 is expressed in support cells, stem cells, and perivascular cells, rather than in neurons. Immunostaining confirmed these results and revealed pervasive expression of ACE2 protein in dorsally-located olfactory epithelial sustentacular cells and olfactory bulb pericytes in the mouse. These findings suggest that CoV-2 infection of non-neuronal cell types leads to anosmia and related disturbances in odor perception in COVID-19 patients."

27 July 2020

[JAMA Intern Med](#): Characteristics and Strength of Evidence of COVID-19 Studies Registered on ClinicalTrials.gov

"We evaluated the characteristics and expected strength of evidence of COVID-19 studies registered on ClinicalTrials.gov....

Rapid dissemination of studies with low-quality evidence studies can influence public opinion, government actions, and clinical practice in potentially harmful ways, especially with a rising tide of COVID-19 study dissemination via preprint or other strategies ahead of peer review....

Although a few large multicenter trials may generate high-quality evidence, the large proportion of studies with an expected low level of evidence is concerning. Rapid dissemination of studies with low-quality evidence studies can influence public opinion, government actions, and clinical practice in potentially harmful ways,³ especially with a rising tide of COVID-19 study dissemination via preprint or other strategies ahead of peer review."

[JAMA Netw Open](#): Estimation of Viral Aerosol Emissions From Simulated Individuals With Asymptomatic to Moderate Coronavirus Disease 2019

"Question: What is the estimated viral load released from an individual with coronavirus disease 2019 (COVID-19) by breathing and coughing, and what is the resulting concentration in a room?

Findings: In this mathematical modeling study, breathing and coughing by a simulated individual with COVID-19 were estimated to release large numbers of viruses in a poorly ventilated room with a coughing person. However, the estimated infectious risk posed by a person with typical viral load who breathes normally was low, and only few people with very high viral load posed an infection risk in a poorly ventilated closed environment.

Meaning: These results may partially explain the observed rates of transmission and suggest that there is a need for strict respiratory protection when people are in the same room with an individual with COVID-19."

[JAMA Netw Open](#): Prevalence of SARS-CoV-2 Infection Among Asymptomatic Health Care Workers in the Greater Houston, Texas, Area

"As COVID-19 pandemic reopening strategies are contemplated and enacted, understanding asymptomatic SARS-CoV-2 infection among HCWs is critical. We report a 4.8% difference between COVID-19-facing (5.4%) and non-COVID-19-facing (0.6%) HCWs, potentially indicating transmission from patients or coworkers. All nonclinical HCWs and community residents had RT-PCR test results negative for SARS-CoV-2. Nonclinical HCWs worked in buildings with separate entrances and heating, ventilation, and air conditioning systems, with lower population density due to remote working policies. Our comparison across job categories of COVID-19-facing HCWs did not yield significant differences between presumably high and low exposures, supporting the need for uniform infection control practices within patient care units."

24 July 2020

[Clin Infect Dis](#): Remdesivir for Severe COVID-19 versus a Cohort Receiving Standard of Care

"GS-US-540-5773 is an ongoing phase 3, randomized, open-label trial comparing two courses of remdesivir (remdesivir-cohort). GS-US-540-5807 is an ongoing real-world, retrospective cohort study of clinical outcomes in patients receiving standard-of-care treatment (non-remdesivir-cohort). Inclusion criteria were similar between studies: patients had confirmed SARS-CoV-2 infection, were hospitalized, had oxygen saturation 94% or lower on room air or required supplemental oxygen, and had pulmonary infiltrates. Stabilized inverse probability of treatment weighted multivariable logistic regression was used to estimate the treatment effect of remdesivir versus standard-of-care. The primary endpoint was the proportion of patients with recovery on day 14, dichotomized from a 7-point clinical status ordinal scale. A key secondary endpoint was mortality....

In this comparative analysis, by day 14, remdesivir was associated with significantly greater recovery and 62% reduced odds of death versus standard-of-care treatment in patients with severe COVID-19."

[JAMA](#): Presence of Genetic Variants Among Young Men With Severe COVID-19

"Question: Are genetic variants associated with severe coronavirus disease 2019 (COVID-19) in young male patients?

Findings: In a case series that included 4 young male patients with severe COVID-19 from 2 families, rare loss-of-function variants of the X-chromosomal TLR7 were identified, with immunological defects in type I and II interferon production.

Meaning: These findings provide insights into the pathogenesis of COVID-19."

[MMWR](#): Estimated Community Seroprevalence of SARS-CoV-2 Antibodies — Two Georgia Counties, April 28–May 3, 2020 (posted early release 21 July 2020)

"SARS-CoV-2 infection in persons who are asymptomatic or not tested might not be recognized by case-based and syndromic surveillance; therefore, the population prevalence of past infection might be unknown.

A community seroprevalence survey, conducted in two counties in metropolitan Atlanta during April 28–May 3, using a two-stage cluster sampling design and serologic testing, estimated that 2.5% of the population had antibodies to SARS-CoV-2.

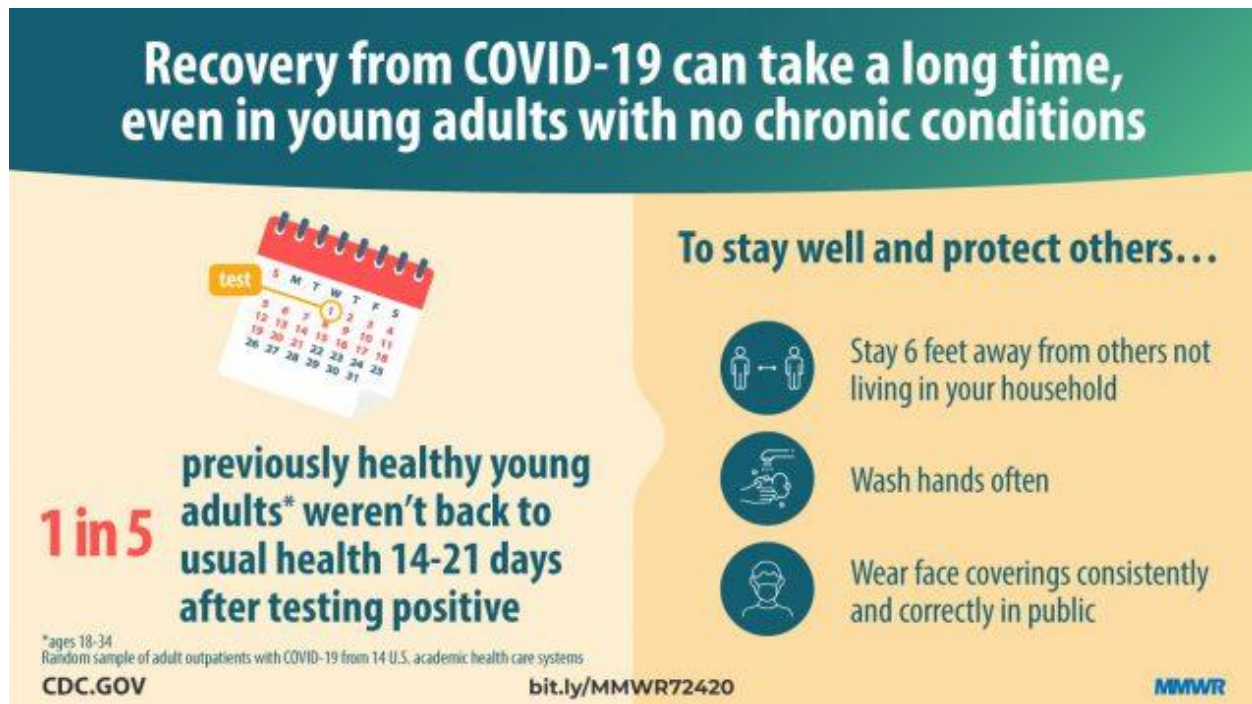
Serologic surveillance can complement case-based and syndromic surveillance. At the time of this survey, most of the two-county population had not been previously infected with SARS-CoV-2, highlighting the importance of continued mitigation measures to prevent infection, including social distancing, consistent and correct use of face coverings, and hand hygiene."

[MMWR](#): Symptom Duration and Risk Factors for Delayed Return to Usual Health Among Outpatients with COVID-19 in a Multistate Health Care Systems Network — United States, March–June 2020

"Relatively little is known about the clinical course of COVID-19 and return to baseline health for persons with milder, outpatient illness.

In a multistate telephone survey of symptomatic adults who had a positive outpatient test result for SARS-CoV-2 infection, 35% had not returned to their usual state of health when interviewed 2–3 weeks after testing. Among persons aged 18–34 years with no chronic medical conditions, one in five had not returned to their usual state of health.

COVID-19 can result in prolonged illness, even among young adults without underlying chronic medical conditions. Effective public health messaging targeting these groups is warranted."



Pediatrics: Well-being of Parents and Children During the COVID-19 Pandemic: A National Survey

"In June 2020, we conducted a national survey of parents with children under age 18 to measure changes in health status, insurance status, food security, utilization of public food assistance resources, childcare and use of health care services since the pandemic began.

Since March 2020, 27% of parents reported worsening mental health for themselves, and 14% reported worsening behavioral health for their children. The proportion of families with moderate or severe food insecurity increased from 6% before March 2020 to 8% after, employer-sponsored insurance coverage of children decreased from 63% to 60%, and 24% of parents reported a loss of regular childcare. Worsening mental health for parents occurred alongside worsening behavioral health for children in nearly 1 in 10 families, among whom 48% reported loss of regular childcare, 16% reported change in insurance status, and 11% reported worsening food security.

The COVID-19 pandemic has had a substantial tandem impact on parents and children in the US. As policymakers consider additional measures to mitigate the health and economic effects of the pandemic, they should consider the unique needs of families with children."

[Science](#): The COVID-19 pandemic and human fertility

"[G]iven the scale of the COVID-19 pandemic, fertility decline seems likely, at least in high-income countries and in the short term. In low- and middle-income countries, the fertility decline observed in recent decades is unlikely to be fundamentally reversed by the pandemic. In contrast to transition economies, most sub-Saharan African countries are lagging behind in the demographic transition. Despite prospects of economic hardship and poverty, ongoing structural change will make a reversal to high fertility unlikely."

23 July 2020

[BMC Infect Dis](#): Scent dog identification of samples from COVID-19 patients – a pilot study

"As the COVID-19 pandemic continues to spread, early, ideally real-time, identification of SARS-CoV-2 infected individuals is pivotal in interrupting infection chains. Volatile organic compounds produced during respiratory infections can cause specific scent imprints, which can be detected by trained dogs with a high rate of precision.

Eight detection dogs were trained for 1 week to detect saliva or tracheobronchial secretions of SARS-CoV-2 infected patients in a randomised, double-blinded and controlled study.

The dogs were able to discriminate between samples of infected (positive) and non-infected (negative) individuals with average diagnostic sensitivity of 82.63% (95% confidence interval [CI]: 82.02–83.24%) and specificity of 96.35% (95% CI: 96.31–96.39%). During the presentation of 1012 randomised samples, the dogs achieved an overall average detection rate of 94% ($\pm 3.4\%$) with 157 correct indications of positive, 792 correct rejections of negative, 33 incorrect indications of negative or incorrect rejections of 30 positive sample presentations.

These preliminary findings indicate that trained detection dogs can identify respiratory secretion samples from hospitalised and clinically diseased SARS-CoV-2 infected individuals by discriminating between samples from SARS-CoV-2 infected patients and negative controls. This data may form the basis for the reliable screening method of SARS-CoV-2 infected people."

[Euro Surveill](#): A large COVID-19 outbreak in a high school 10 days after schools' reopening, Israel, May 2020

"On 13 March 2020, Israel's government declared closure of all schools. Schools fully reopened on 17 May 2020. Ten days later, a major outbreak of coronavirus disease (COVID-19) occurred in a high school. The first case was registered on 26 May, the second on 27 May. They were not epidemiologically linked. Testing of the complete school community revealed 153 students (attack rate: 13.2%) and 25 staff members (attack rate: 16.6%) who were COVID-19 positive."

[Lancet Child Adolesc Health](#): Neonatal management and outcomes during the COVID-19 pandemic: an observation cohort study

"To the best of our knowledge, this is the largest cohort of neonates born to mothers positive for SARS-CoV-2 at the time of delivery, with prospective follow-up up to 1 month of life. In our cohort, 68 (83%) of 82 neonates with complete follow-up data roomed in with the mothers and all were allowed to breastfeed. Prospective real-time PCR testing for SARS-CoV-2 was negative in all neonates tested at 1 week and 2 weeks of life. None of the neonates had symptoms of COVID-19 as of 1 month of age.

Our findings support the published literature and confirm that perinatal transmission of COVID-19 is unlikely to occur if correct hygiene precautions are undertaken. In view of the benefits of early mother–neonate bonding and breastfeeding, rooming in with the mother and direct breastfeeding are safe and should be promoted, but these procedures need to be paired with effective parental education of infant protective strategies, such as use of surgical masks when near the neonate and frequent hand hygiene."

[PLoS Pathog](#): Life course exposures continually shape antibody profiles and risk of seroconversion to influenza

"Antibody profiles characterize immunity arising from multiple influenza infections during a lifetime and could provide more information than measuring homologous titers. As antibody profiles consist of complex cross-reactions and are difficult to quantify, how past exposures vary across people and time and determine the risk of future infections remains unclear. Here, we develop several metrics to define the key characteristics of antibody profiles, including the overall levels, the breadth and temporal center of mass. With these metrics, we show that immunity accumulates during the first twenty years of life and then declines until 40–50 years old. This pattern is likely driven by the widespread influenza exposure as we find during the four-year periods. Further, we show that individuals with higher antibody to antigenically distant strains had a higher frequency of seroconversion to recent strains, with an unclear underlying mechanism. Our work provides quantitative tools to analyze complex antibody profiles and improve the understanding of heterogeneity in antibody response and vaccine efficacy across age groups."

21 July 2020

[Emerg Infect Dis](#): Impact of Social Distancing Measures on Coronavirus Disease Healthcare Demand, Central Texas, USA

"Social distancing orders have been enacted worldwide to slow the coronavirus disease (COVID-19) pandemic, reduce strain on healthcare systems, and prevent deaths. To estimate the impact of the timing and intensity of such measures, we built a mathematical model of COVID-19 transmission that incorporates age-stratified risks and contact patterns and projects numbers of hospitalizations, patients in intensive care units, ventilator needs,

and deaths within US cities. Focusing on the Austin metropolitan area of Texas, we found that immediate and extensive social distancing measures were required to ensure that COVID-19 cases did not exceed local hospital capacity by early May 2020. School closures alone hardly change the epidemic curve. A 2-week delay in implementation was projected to accelerate the timing of peak healthcare needs by 4 weeks and cause a bed shortage in intensive care units. This analysis informed the Stay Home-Work Safe order enacted by Austin on March 24, 2020."

Selected Literature: Preprints

Preprints are found on preprint servers; [arXiv](#), [bioRxiv](#), and [medRxiv](#) are commonly used for biomedical research. Per medRxiv: "Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."

[medRxiv](#): Determining the period of communicability of SARS-CoV-2: A rapid review of the literature (posted 30 July 2020)

"Introduction: How long individuals may transmit virus after infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is unclear. Understanding the communicability period of SARS-CoV-2 is important to inform the period of isolation required to prevent nosocomial and community spread. The objective of this study was to identify the reported communicable period of SARS-CoV-2, based on a rapid review of existing literature.

Methods: Studies reporting empirical data on the period of communicability of SARS-CoV-2 through investigations of duration of communicability based on in-person contact ('contact transmission'), isolation and culture of virus ('viral isolation'), and viral shedding by detection of nucleic acids by RT-PCR ('viral shedding') were identified through searches of peer-reviewed and pre-print health sciences literature databases (Ovid MEDLINE, Embase, Google Scholar, medRxiv and arXiv) and the grey literature. Articles were screened for relevance, then data were extracted, analyzed, and synthesized.

Results: Out of the 165 studies included for qualitative analysis, one study investigated contact transmission, three investigated viral isolation, 144 investigated viral shedding, and 17 studies focused on both viral shedding and viral isolation. The median length of time until viral clearance across all viral isolation studies was nine days; however, the maximum identified duration was 32 days. Studies with data on both viral isolation and viral shedding showed a prolonged maximum time until viral clearance for viral shedding (9 days vs 24 days).

Discussion: Findings from this review support a minimum 10-day period of isolation; however, additional observation should be considered for individuals being released into high-risk settings."

[medRxiv](#): Persistent fatigue following SARS-CoV-2 infection is common and independent of severity of initial infection (posted 30 July 2020)

"Fatigue is a common symptom in those presenting with symptomatic COVID-19 infection. However, it is unknown if COVID-19 results in persistent fatigue in those recovered from acute infection. We examined the prevalence of fatigue in individuals recovered from the acute phase of COVID-19 illness using the Chalder Fatigue Score (CFQ-11). We further examined potential predictors of fatigue following COVID-19 infection, evaluating indicators of COVID-19 severity, markers of peripheral immune activation and circulating pro-inflammatory cytokines. Of 128 participants (49.5 ± 15 years; 54% female), more than half reported persistent fatigue (52.3%; 45/128) at 10 weeks (median) after initial COVID-19 symptoms. There was no association between COVID-19 severity (need for inpatient admission, supplemental oxygen or critical care) and fatigue following COVID-19. Additionally, there was no association between routine laboratory markers of inflammation and cell turnover (leukocyte, neutrophil or lymphocyte counts, neutrophil-to-lymphocyte ratio, lactate dehydrogenase, C-reactive protein) or pro-inflammatory molecules (IL-6 or sCD25) and fatigue post COVID-19. Female gender and those with a pre-existing diagnosis of depression/anxiety were over-represented in those with fatigue. Our findings demonstrate a significant burden of post-viral fatigue in individuals with previous SARS-CoV-2 infection after the acute phase of COVID-19 illness. This study highlights the importance of assessing those recovering from COVID-19 for symptoms of severe fatigue, irrespective of severity of initial illness, and may identify a group worthy of further study and early intervention."

[medRxiv](#): Unemployment insurance and food insecurity among people who lost employment in the wake of COVID-19 (posted 30 July 2020)

"Forty million U.S. residents lost their jobs in the first two months of the coronavirus disease 2019 (COVID-19) pandemic. In response, the Federal Government expanded unemployment insurance benefits in both size (\$600/week supplement) and scope (to include caregivers and self-employed workers). We assessed the relationship between unemployment insurance and food insecurity among people who lost their jobs during the COVID-19 pandemic in the period when the federal unemployment insurance supplement was in place. We analyzed data from the Understanding Coronavirus in America (UAC) cohort, a longitudinal survey collected by the University of Southern California Center for Economic and Social Research (CESR) every two weeks between April 1 and July 8, 2020. We limited the sample to individuals living in households earning less than \$75,000 in February 2020 who lost their jobs during COVID-19. Using difference-in-differences and event study regression models, we evaluated the association between receipt of unemployment insurance and self-reported food insecurity and eating less due to financial constraints. We

found that 40.5% of those living in households earning less than \$75,000 and employed in February 2020 experienced unemployment during the COVID-19 pandemic. Of those who lost their jobs, 31% reported food insecurity and 33% reported eating less due to financial constraints. Food insecurity peaked in April 2020 and declined over time, but began to increase again among people receiving unemployment insurance during the final wave of the survey ahead of the federal supplement to unemployment insurance ending. Food insecurity and eating less were more common among people who were non-White, lived in lower-income households, younger, and who were sexual or gender minorities. Receipt of unemployment insurance was associated with a 4.4 percentage point (95% CI: -7.8 to -0.9 percentage points) decline in food insecurity (a 30.3% relative decline compared to the average level of food insecurity during the study period). Receipt of unemployment insurance was also associated with a 6.1 percentage point (95% CI: -9.6 to -2.7 percentage point) decline in eating less due to financial constraints (a 42% relative decline). Estimates from event study specifications revealed that reductions in food insecurity and eating less were greatest in the four-week period immediately following receipt of unemployment insurance, with no evidence of differential pre-existing trends in either outcome. We conclude that receiving unemployment insurance benefits during the period when the \$600/week federal supplement was in place was associated with large reductions in food insecurity."

[bioRxiv](#): Evidence of exposure to SARS-CoV-2 in cats and dogs from households in Italy (posted 23 July 2020)

"SARS-CoV-2 originated in animals and is now easily transmitted between people. Sporadic detection of natural cases in animals alongside successful experimental infections of pets, such as cats, ferrets and dogs, raises questions about the susceptibility of animals under natural conditions of pet ownership. Here we report a large-scale study to assess SARS-CoV-2 infection in 817 companion animals living in northern Italy, sampled at a time of frequent human infection. No animals tested PCR positive. However, 3.4% of dogs and 3.9% of cats had measurable SARS-CoV-2 neutralizing antibody titers, with dogs from COVID-19 positive households being significantly more likely to test positive than those from COVID-19 negative households. Understanding risk factors associated with this and their potential to infect other species requires urgent investigation."

Upcoming Events (Webinars, Calls, etc.)

WHAT: CDC Clinician Outreach and Communication Activity (COCA) Call
WHEN: Tuesday, 04 August 2020 1400-1500 ET
TOPIC: COVID-19 & Telehealth Implementation: Stories from the Field

"During this COCA Call, presenters will discuss telehealth benefits and challenges during and after the COVID-19 pandemic. Presenters will share their experiences implementing telehealth across diverse healthcare settings and address considerations for its future use."

DETAILS: https://emergency.cdc.gov/coca/calls/2020/callinfo_080420.asp

News in Brief

Another Milestone

As of Wednesday, 29 July 2020, over 150,000 people have died in the US from the coronavirus, surpassing projections in April of "no more than 60,000 people" would die ([NYT](#)).

Here are 50 pictures that help put that number into perspective – basically, more than population of cities around the country, and in some cases multiples of those cities ([BuzzFeed](#)).

For a more local perspective, 150,000 people is about a third of the population of Virginia Beach's current population of 450,000 ([US Census](#)).

A Tale of Two Koreas

In what is being characterized as North Korea's first suspected case of coronavirus, state media said a person who defected to South Korea three years ago last week returned with COVID-19 symptoms ([BBC](#)).

South Korea denies the 're-defector', who reached the North by crawling through a drain pipe and swimming about a mile, was registered as a COVID-19 patient or came in contact with anyone with the virus ([BBC](#)).

Testing, Supplies, and Transmission

Ahead of Tropical Storm Isaias, Florida will suspend coronavirus testing from Thursday until at least Tuesday morning ([NPR](#)).

The FDA has authorized a diagnostic screening test that can be used in anyone, regardless of whether they are showing symptoms or known exposure ([FDA](#)).

The DoD has awarded a \$4.9 million contract to Pall Corp for ventilator filters ([HPN](#)).

Six months into a respiratory pandemic, we still aren't doing enough about ventilation issues to mitigate airborne transmission ([Atlantic](#)).

There is growing evidence that young adults who live in mixed generation housing are increasing the risk of infection for older family members ([WaPo](#)).

Ripple Effects

We know the pandemic is affecting women differently than men, but we don't really know how much or what ways because we aren't collecting sex-specific data ([STAT](#)).

"Americans aren't making babies, and that's bad for the economy" ([Businessweek](#)).

Telehealth demands have leveled off, but there is still elevated use, especially for Medicare beneficiaries ([HHS](#)).

Vaccines

Phase 3 study of Moderna's coronavirus vaccine is underway ([NIH](#)).

Experts warn that coronavirus vaccine education should mention they could be 'reactogenic' -- that is, they are going to involve reactions such as headaches, sore arms, chills, and fever ([STAT](#)).

Caring for Patients

An ethical dilemma: should healthcare workers risk their lives to care for COVID-19 patients? ([STAT](#)).

With visitor restrictions for COVID-19 patients, audio recordings of family may offer support and let caregivers connect with patients ([Medpage](#)).

Hospitals in Texas overwhelmed with coronavirus patients and facing limiting resources may send home patients to die ([CNN](#)).

We may only be seeing the beginning of the effects of COVID-19 on the long-term health of patients ([Medpage](#)).

Thanks, Coronavirus

Buddy, a German shepherd who was the first dog to test positive for COVID-19 in the US, has died ([NatGeo](#)).

The UK government has confirmed that a pet cat was infected by SARS-CoV-2 ([UK gov](#)).

COVID and Sports

A baseball card commemorating Dr. Anthony Fauci's first pitch to kick off the new MLB season is one of the bestselling cards in the history of Topps ([CNN](#)).

The home opener for the Miami Marlins major league baseball team has been canceled after 14 staff members -- including players and coaches -- tested positive for COVID-19 ([SI](#)).

Photos: baseball mascots in empty stadiums ([Atlantic](#)).

College football's SEC is reducing the season to 10 games for each of its 14 teams in an attempt to continue playing during the pandemic ([WaPo](#)). (Disclosure: this writer is an alumna of 2 SEC schools, Vanderbilt University and the University of Tennessee, and is pretty sure a shortened season and a pandemic will still not excuse Vandy's losing season.)

Long Reads

"How Jared Kushner's secret testing plan "went poof into thin air"" ([VF](#)).

"There's not just one coronavirus outbreak in the United States. Now there are many, each requiring its own mix of solutions" ([NYT](#)).

"California's COVID-19 dream has devolved into a nightmare. Now what?" ([BuzzFeed](#))

"A vaccine reality check" ([Atlantic](#)).

Other Infectious Diseases

New polio cases have been reported in Afghanistan, Pakistan, and Chad ([GPEI](#)).

Along with Ebola and coronavirus, the Democratic Republic of the Congo is dealing with cases of plague -- 45 cases, 9 of them fatal; 9 patients including 4 who died had respiratory symptoms, suggesting progression to pneumonic plague -- since June ([WHO](#)).

Deaths from yellow fever in Africa could increase up to 25% by 2050 because of climate change ([ICL](#)).

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